PRINT: ISSN 0976-6901 ONLINE: ISSN 2456-6543
JOURNAL OF
BIODIVERSITY



J Biodiversity, 9(1-2): 81-102 (2018)
PRINT: ISSN 0976-6901 ONLINE: ISSN 2456-6543
DOI: 10.31901/24566543.2018/09.1-2.077

# Optimal Treatment of Domestic Wastewater through Constructed Wetlands

**T. V. Ramachandra[1,2,3*], V. Sincy[1], K. S. Asulabha[1], Durga Madhab Mahapatra[1,4], Sudarshan P. Bhat[1] and Bharath H. Aithal[1,5]**

*[1]Energy and Wetlands Research Group, Centre for Ecological Sciences (CES)*
*[2]Centre for Sustainable Technologies (ASTRA)*
*[3]Centre for Infrastructure, Sustainable Transportation and Urban Planning (CiSTUP) Indian Institute of Science, Bangalore, Karnataka, India*
*[4]Biological and Ecological Engineering Department, Oregon State University, Corvallis, OR, USA*
*[5]Ranbir and Chitra Gupta School of Infrastructure Design and Management (RCGSIDM), IIT-Kharagpur, Kharagpur, West Bengal, India*

**KEYWORDS** Algae. Bioremediation. Nutrient Removal. Urbanisation

**ABSTRACT** Unplanned urbanisation leads to haphazard growth altering the local ecology, hydrology and environment. Sewage generated in urban households is either untreated or partially treated, which is finally let into water bodies through trunk sewers and storm water network. Although sustained inflow of sewage into water bodies has maintained the water levels in the system of interconnected lakes but it has also contributed to the contamination of surface as well as groundwater sources. This study explores the feasibility of bioremediation path to treat wastewater for reuse and mitigate the water crisis in the city. Innovative path of wastewater bioremediation includes integrated wetlands system consisting sewage treatment plant, constructed wetlands (with location specific macrophytes) and algal pond integrated with a lake. Integration of the conventional treatment system with wetlands [consisting of reed bed (with typha etc.) and algal pond] would help in the complete removal of nutrients in the cost effective way.